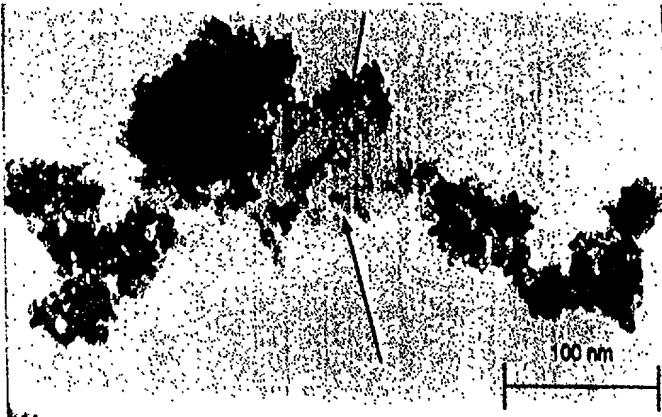


## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number:      PCT/US97/18631  (22) International Filing Date:      16 October 1997 (16.10.97)  (30) Priority Data: <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div>08/732,016      16 October 1996 (16.10.96)</div> <div>US</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div>08/729,344      16 October 1996 (16.10.96)</div> <div>US</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div>08/729,343      16 October 1996 (16.10.96)</div> <div>US</div> </div> (71) Applicant (for all designated States except US): ETEX CORPORATION [US/US]; 38 Sidney Street, Cambridge, MA 02138 (US).  (72) Inventors; and (75) Inventors/Applicants (for US only): LEE, Dosuk, D. [US/US]; Apartment 518, 50 Longwood Avenue, Brookline, MA 02146 (US). REY, Christian [FR/FR]; Lieu-dit "Les Dames", Aureville, F-31320 Castanet (FR). AIOLOVA, Maria [BG/US]; 123 Seawall Avenue, Brookline, MA 02146 (US).  (74) Agent: SCOZZAFAVA, Mary, Rose; Choate, Hall & Stewart, Exchange Place, 53 State Street, Boston, MA 02109 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>Without international search report and to be republished upon receipt of that report.</i>
(54) Title: METHOD OF PREPARING A POORLY CRYSTALLINE CALCIUM PHOSPHATE AND METHODS OF ITS USE  (57) Abstract  <div style="display: flex;"> <div style="flex: 1;"> <p>The present invention provides a novel process for producing a calcium phosphate cement or filler which hardens in a temperature dependent fashion in association with an endothermic reaction. In the reaction a limited amount of water is mixed with dry calcium phosphate precursors to produce a hydrated precursor paste. Hardening of the paste occurs rapidly at body temperature and is accompanied by the conversion of one or more of the reactants to poorly crystalline apatitic calcium phosphate. The hardened cements, fillers, growth matrices, orthopedic and delivery devices of the invention are rapidly resorbable and stimulate hard tissue growth and healing. A composite material is provided including a strongly bioresorbable, poorly crystalline apatitic calcium phosphate composite and a supplementary material. The supplementary material is in intimate contact with the hydroxyapatite material in an amount effective to impart a selected characteristic to the composite. The supplemental material may be biocompatible, bioresorbable or non-resorbable. A method for treating a bone defect also is provided by identifying a bone site suitable for receiving an implant, and introducing a strongly resorbable, poorly crystalline apatitic calcium phosphate at the implant site, whereby bone is formed at the implant site. The implant site may be a variety of sites, such as a tooth socket, non-union bone, bone prosthesis, an osteoporotic bone, an intervertebral space, an alveolar ridge or a bone fracture.</p> </div> <div style="flex: 1; text-align: center;">  <p>A black and white micrograph showing a composite material. It features several dark, irregular, and somewhat clustered regions against a lighter, grainy background. These dark regions appear to be the supplementary material mentioned in the abstract. A scale bar in the bottom right corner indicates a length of 100 nm.</p> </div> </div>		